

# Governor's STEM Academy Brief



Office of Career and Technical Education Services

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The purpose of the monthly brief is to provide information, resources, and a networking vehicle to support the STEM (science, technology, engineering, and mathematics) Academies in Virginia.

## GOVERNOR'S STEM ACADEMIES SPOTLIGHTS

The Governor's STEM Academy at Landstown High School (Virginia Beach City Public Schools) has been awarded a \$1,500 grant from the National Defense Education Program to cover the *FIRST* Robotics Competition (FRC) Team 4969 competition expenses. The FRC Robotics Team 4969 competed recently in the first annual Hampton Roads Robot "Rumble in the Roads" at Menchville High School in Newport News, Virginia. With 24 teams in attendance, the Landstown team finished fourth overall in the qualification rounds and second in the finals.

The Governor's STEM Academy at Heritage High School, Newport News Public Schools, in collaboration with the Newport News Shipbuilding's Career Pathways program, has earned the third place Career Pathways Partnership Excellence Award from the National Career Pathways Network and was officially recognized during an awards ceremony at the NCPN annual conference October 12-14, 2014, in Orlando, Florida. The NCPN award emphasizes the importance of career guidance and advising and providing work-based learning opportunities to expand options for students to acquire skills in STEM (science, technology, engineering and mathematics). Through an extensive partnership with Newport News Shipbuilding's (NNS) Career Pathways, the program combines academic coursework and research experience with a challenging and focused school environment.

## CAREER LINKS—SCIENCE, TECHNOLOGY, ENGINEERING & MATHEMATICS

- Sites for STEM career exploration include [The Best Jobs of 2014](#) (from *U.S. News & World Report*), [ISEEK careers](#), [Bio-Link: Biotech Careers](#), [Career Cornerstone Center](#), and [Inside Jobs: Career Finder](#).
- Recent research related to STEM careers includes [The Hidden STEM Economy](#), by Jonathan Rothwell, June 10, 2013; [Real-Time Insight into the Market for Entry-Level STEM Jobs](#), by Burning Glass Technologies, February 2014; and [Still Searching: Job Vacancies in STEM Skills](#), by Jonathan Rothwell, July 1, 2014.
- Explore [DiscoverE](#) for ways to introduce students to engineering and engineering careers.
- Explore NASA's [Robotics](#) site for lesson plans, career resources, images, multimedia and more. See also [SOLIDWORKS Teacher Blog](#).
- The [Bureau of Labor Statistics](#) offers up-to-date information on career opportunities in STEM.
- [Career Cluster Employment Projections, 2010–2020](#), presents an overview of changes predicted for career clusters, including STEM.
- [Career Cluster Predictions: Employment Opportunities in 2018](#) gives the NASDCTEc-sponsored report on employment projections for 2008–2018, prepared by The Center on Education and the Workforce (CEW) at Georgetown University. The report focuses particularly on the issue of changing education requirements.

## GRANTS AND OPPORTUNITIES

- The CenturyLink Clarke M. Williams Foundation's Teachers and Technology [grant program application](#) is open for full-time pre-K12 teachers in CenturyLink's local service areas who want to innovatively implement technology in their classrooms. The application deadline is January 2, 2015. Last year, Regan Priest of Halifax County Middle School was awarded \$4,989 to enhance the school's "Rocking with Robotics" program.

- Students can learn about career paths for STEM. Students under the tutelage of industry marine engineers, designers and naval architects while competing in [The Apprentice School SNAME Boat Design Competition](#). Newport News Shipbuilding has a highly technical [Apprentice School](#) that provides educational, leadership and career opportunities for students interested in shipbuilding careers. Apprentices will actually build the top four boat designs submitted from high schools throughout Virginia and across the United States. These four boats will participate in head-to-head competition to determine the overall best design. At the conclusion of the competition, the four finalists will receive their boats to display proudly in their schools. The finalist competition date will be April 25, 2015, and will take place on Lake Maury, at one of our nation's largest maritime museums, [The Mariners' Museum](#). There is no cost to participate.

## INSTRUCTIONAL STRATEGIES

- [The 10 Best STEM Resources](#) from the NEA is a compendium of sites for curriculum development, professional development, and classroom materials.
- [Science Daily](#) and [Discover](#) feature current news on research related to a variety of STEM fields.
- STEM lesson plans are available at [AAAS ScienceNetLinks](#), [The Concord Consortium](#), [TeachEngineering](#), and [STEM Transitions](#).
- Intel's [Design and Discovery](#) is a curriculum for engaging female students in engineering and related STEM areas.
- ITEEA offers [Technology and Engineering Education Resources](#), as well as an [ITEEA WomenTech Portal](#) and other links for educators.
- Visit [Science Friday](#) for audio clips, videos, readings, and lesson plans in all STEM areas.
- For a K-12 database of mathematics and science lessons, visit [PRISM: Partnerships for Research in Science and Math Education](#).
- [Intel Education STEM Resources](#) offers mathematics and science project-based units, along with other tools for teaching critical thinking in the context of STEM.
- Resources specifically for mathematics teachers are available at [NRICH enriching mathematics](#).
- For information on soft robotics, visit [IEEE RAS Technical Committee on Soft Robotics](#), [Soft Robotics: A Perspective—Current Trends and Prospects for the Future](#), [Challenging and Opportunities for Design, Simulation, and Fabrication of Soft Robots](#), and [At the Crossroads: Interdisciplinary Paths to Soft Robots](#).
- To introduce students to the "Internet of Things," visit sites such as [Microsoft](#), [Cisco](#), [How the Internet of Things Changes Everything](#), [Business Insider](#), [The Internet of Things Council](#), [ZDNet: Tapping M2M](#), and [The Internet of Things: An Introduction](#).
- A summary of the workshop [Surmounting the Barriers: Ethnic Diversity in Engineering](#) is available from The National Academies Press.
- The [National Energy Education Development Project](#) offers energy-related [Curriculum Resources](#) and [Supplemental Materials](#) for educators, along with [Science Fair Project ideas for students](#).
- Using CAM software and a CNC router, students in the Materials and Processes Technology course at the Pulaski County High School STEM academy used their carved negative forms to cast pewter medals, medallions, and other custom jewelry and mementos.

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